

REMARKS

Claims 1, 3-9, 11-13, and 15-18 were pending. Claims 1, 6, 7, 13, and 16 have been amended. Claims 19-22 have been added. Claims 1, 3-9, 11-13, and 15-22 are pending.

Claims 1, 4-9, 12, 13, and 17 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Pat. No. 6,320,668 to Kim. Applicant respectfully traverses this rejection.

Claim 1 recites an image correction method comprising, *inter alia*, obtaining reference outputs "indicative of outputs for a plurality of known reference colors." The plurality of known reference colors includes "white, at least three primary colors, and at least two other non-primary colors." An error measure is obtained "representing a difference between said reference outputs and what would be expected for each of said reference outputs." A single color correction matrix is "adjusted to minimize simultaneously each said respective error measure to obtain optimum overall correction for said plurality of known reference colors, including white." The color correction matrix is applied "to an input image to provide color correction and white balance for each of said plurality of known reference colors to obtain a color-corrected and white-balanced image from an said input image."

Kim discloses methods of color correction and gray scale correction. A color correction matrix and a gray scale correction matrix are obtained and stored. The color correction unit receives output from the gray level correction processing unit through the color correction processing unit. The color correction matrix is applied to the output of the gray level correction processing unit. The results are then converted into the CIE-XYZ color coordinate system. Kim does not teach or suggest obtaining a "single color correction matrix" that is adjusted to "minimize simultaneously said

respective error measure to obtain optimum overall correction for each of said plurality of known reference colors." Claim 1 is not anticipated by Kim. Claims 4, 5, 15, 16, 19, and 21 depend from claim 1, and are submitted as patentable over Kim for at least the same reasons.

Claim 6 recites an image sensor apparatus comprising, *inter alia*, an "image sensor device," and "an image processor, operating according to a single color correction matrix adjusted to minimize respective error measures." The color correction matrix is "adjusted according to at least the color white, three primary colors, and at least two additional non-primary colors."

Kim discloses an image sensor with separate color and gray scale correction utilizing separate matrices. The color correction matrix is applied to image data after the gray level correction matrix. Kim does not teach or suggest "an image processor, operating according to a single color correction matrix." Kim does not anticipate the present invention as recited in claim 6. Claims 7-9, 11, 12, 17, 18, and 22 depend from claim 6, and are patentable over Kim for at least the same reasons.

Claim 13 recites a method of correcting an image from an image sensor comprising, *inter alia*, obtaining a color correction matrix which "takes into account correction of incoming radiation for at least the color white, three primary colors, and two other non-primary colors." Respective error measures for the non-primary colors are "weighted such that said correction matrix corrects for some of said non-primary colors more than said primary colors." The color correction matrix is applied "to obtain a color-corrected and white-balanced image directly from an input image."

Kim discloses a method of correcting an image in which a color correction matrix is applied to image data after application of a gray level correction matrix. Kim

also does not disclose “applying a color correction matrix to obtain a subjectively color-corrected and white-balanced image directly from an input image. Further, Kim does not disclose weighting some colors more than others, as admitted in the Office Action at paragraph 17, for example. Claim 13 is not anticipated by Kim. New claim 20 depends from claim 13, and is patentable over Kim for at least the same reasons.

Claims 3, 11, 15, 16, and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kim in view of Japanese Publ. No. 02-074367A to Yamaguchi. Applicant respectfully traverses this rejection.

Claims 3, 15, and 16 depend from independent claim 1, and accordingly are patentable over Kim. Claims 11 and 18 depend from independent claim 6, and also are patentable over Kim. Yamaguchi has not been applied against independent claims 1 and 6. Further, Yamaguchi does not cure the deficiencies of Kim or combine with Kim to obviate or suggest the present invention. Moreover, Yamaguchi (abstract translation) discloses weight values determined by the number of duplications obtained from input color digital information on the color sample data and a recording color information. Yamaguchi does not teach or suggest a weight factor that is “assigned to a respective color based on impact on subjective image quality.”

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Application No.: 09/209,982

Docket No.: M4065.0858/P858

Dated: September 16, 2004

Respectfully submitted,

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